

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE  
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES**

In re Patent Application of

Confirmation No.: 1656

John CHEN et al

Date: May 14, 2007

Serial No.: 10/657,343

Group Art Unit: 2833

Filed: September 8, 2003

Examiner: Felix O.Figueroa

For: MULTIPORT RJ CONNECTOR

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**VIA EFS-WEB**

Commissioner for Patents

P.O. Box 1450

Alexandria, VA 22313-1450

**APPEAL BRIEF PURSUANT TO 37 C.F.R. § 41.37**

Sir:

This appeal is taken from the Final Office Action mailed November 16, 2006. In support of the Notice of Appeal filed March 13, 2007, the following Appeal Brief is presented.

**I. REAL PARTY IN INTEREST:**

The real party in interest in the above-identified application is: Bel-Fuse, Inc.

**II. RELATED APPEALS AND INTERFERENCES:**

There are no related appeals or interferences of which applicants are aware regarding the above-identified application.

**III. STATUS OF CLAIMS:**

Claims 3-9 and 12-16 are pending and subject to the present appeal.

Claims 1,2 10, 11 and 17 were previously canceled.

Claims 18 and 19 stand withdrawn from consideration.

**IV. STATUS OF AMENDMENTS:**

A response dated January 29, 2007 was filed in response to the final office action. No proposed amendments to the claims were submitted in the response..

**V. SUMMARY OF CLAIMED SUBJECT MATTER:**

Referring to Figs. 1 and 2, Applicants' invention as reflected, in independent claim 3, is directed to a multiport connector 10, which comprises a housing 12 having at least two aligned compartments 14 and 16, each compartment being structured and arranged to receive respective plugs (spec., p. 3, lines 17-25).

A first plurality of conductive contact fingers 18 are disposed in one of the compartments and a second plurality of conductive contact fingers 18 are disposed in another of the compartments (spec., p. 3, line 26 to p. 4, line 4).

Referring to Figs. 3 and 4, a multilayer printed wiring board 20 separates the two compartments, the printed wiring board having circuit patterns on opposite sides of opposed non-conductive layers and a metal shielding layer intermediate the non-conductive layers (spec., p. 4, lines 3-7).

The first plurality of fingers have first portions for making electrical contact with one of the plugs (spec., p. 4, lines 1-2) and second portions for making contact with the circuit pattern on one of the non-conductive layers of the multilayer printed wiring board (spec., p. 4, lines 3-7).

The second plurality of fingers have first portions for making electrical contact with another one of the plugs and second portions for making contact with the circuit pattern on another one of the non-conductive layers of the multilayer printed wiring board (spec., p. 4, lines 3-7).

One of the compartments has a toroid assembly housing for housing two sets of toroids 28a and 28b, one set for one compartment and the other set for another compartment and the toroid assembly housing has a metal separator for separating one set of toroids from the other set of toroids (spec., p. 4, lines 12-23).

The multiport connector of independent claim 12 differs from that in independent claim 3 by specifying a plurality of sets of aligned compartments 14 and 16.

**VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL:**

1. Whether claims 3 and 8/3-8/6 are unpatentable under 35 U.S.C. §103(a) over Wu (U.S. Patent No. 6,132,260) in view of the prior art of Figs. 1-3 of Yamamoto et al. (U.S. Patent No. 5,865,934) and Kunz (U.S. Patent No. 6,171, 152). Applicants respectfully traverse this rejection.
2. Whether claims 7 and 8/7 are unpatentable under 35 U.S.C. §103(a) over Wu '260, Yamamoto and Kunz and further in view of Laity (U.S. Patent No. 6,183,308)
3. Whether claims 9/8/3 to 9/8/6 are unpatentable under 35 U.S.C. §103(a) over Wu, Yamamoto and Kunz and further in view of Goodall et al (U.S. Patent No. 5,531,612). Applicants respectfully traverse this rejection.
4. Whether claim 9/8/7 is unpatentable under 35 U.S.C. §103(a) over Wu, Yamamoto et al, Kunz and Laity, and further in view of Goodall et al
5. Whether claims 12-15 are unpatentable under 35 U.S.C. §103(a) over Wu, Yamamoto, Kunz and further in view of Goodall et al. Applicants respectfully traverse this rejection.
6. Whether claim 16 is unpatentable under 35 U.S.C. §103(a) over Wu '260, Yamamoto, Goodall and Kunz and further in view of Laity. Applicants respectfully traverse this rejection.

**VII. ARGUMENT:**

- 1. Whether claims 3 and 8/3-8/6 are unpatentable under 35 U.S.C. §103(a) over Wu (U.S. Patent No. 6,132,260) in view of the prior art of Figs. 1-3 of Yamamoto et al. (U.S. Patent No. 5,865,934) and Kunz (U.S. Patent No. 6,171, 152). Applicants respectfully traverse this rejection.**

As recognized by the Examiner, Wu does not disclose a multilayer printed wiring board. More significantly however, Wu does not disclose a shield between the upper and lower compartments. Accordingly, there would be no motivation for one skilled in the art to use a printed wiring board such as Yamamoto et al in place of the board 7 of Wu.

Assuming for the sake of the argument that there is motivation to provide internal shielding, Applicants respectfully submit that there is no suggestion to do so by providing a shield in the printed wiring board 7. Indeed, in U.S. Patent No. 6,206,725, in which Wu is the inventor and the assignee is the same assignee as the assignee of Wu '260, a connector assembly

is disclosed which appears to be very similar to the connector assembly disclosed in Wu '260. In this connector, inner shielding is effected by an inner shielding member 3 which is vertically disposed behind the upper and lower compartments rather than incorporated in circuit boards of the upper and lower compartments or disposed horizontally between the circuit boards. Why would one skilled in the art be motivated to replace a shielding technique already shown to work in the Wu connector and instead use a different, unproven shielding technique?

In response to Applicant's argument that there is no suggestion to combine the references, the Examiner, in the Office Action dated November 14, 2006, states that there is such a suggestion. According to the Examiner, "Yamamoto (in prior art Figs. 1-3) teaches a multiplayer printed wiring board having circuit patterns (23) on opposite sides of opposed non-conductive layers (22) and *a metal shielding layer* intermediate the non-conductive layers to provide structural strength and heat dissipation (Col.. 9, lines 59-61)." (emphasis added). However, nowhere in lines 59-61 or anywhere else in Yamamoto is the metal plate 21 characterized as a "metal shielding layer"; instead, Yamamoto in lines 59-61 states that the metal plate 21 serves as a support, a reinforcement and a heat sinking element, as well as a ground electrode. Accordingly there is no suggestion in Yamamoto to use the multilayer board as a shield and therefore no suggestion for combining Yamamoto with Wu to provide shielding. The Examiner notes that the fact that applicant has recognized another advantage (i.e. providing shielding) which would flow naturally from following the suggestion of the prior art cannot be the basis for patentability when the differences would otherwise be obvious. Applicant agrees, that if there were a reason suggested to combine the references, the fact that Applicant had recognized another advantage would not be the basis for patentability. But that is not the case here. There is no reason why one skilled in the art would use a board, one of whose primary features is heat sinking, in an application in which heat generating components are not employed, particularly where such a multilayered board would add considerable cost.

In addition to the significant difference of shielding, independent claim 3 also differs from Wu and Yamamoto by specifying that one of the compartments has a toroid assembly housing for housing two sets of toroids, one set for one compartment and the other set for another compartment, wherein the toroid assembly housing has a metal separator for separating one set of toroids from the other set of toroids

The Examiner relies on the newly cited Kunz patent to show this feature. In particular, the Examiner contends that Kunz teaches "a metal separator 74 for separating sets of toroids in order to reduce electromagnetic interference caused by one set to another." However, what the Examiner characterizes as a separator is actually the middle part of a three-piece Faraday shield which also comprises parts 76 and 78. The three Faraday shield pieces 74, 76, and 78 are assembled and electrically connected such that "they constitute a continuous shield *around* the whole of the eight-port, two-row modular connector 60" (col. 5, lines 7-10; emphasis added). Thus, no part of the shield, let alone the part 74, separates the sets of toroids from one another but, instead, the entire shield surrounds all of the sets. Further, the sets of toroids are not even electromagnetically shielded from one another. Indeed, the walls of the housing separating the sets of housing are insulative, i.e., they are integral parts of the insulative housing 42. (see, e.g., col. 4, lines 37-40) In response to Applicant's argument that the "separator is actually the middle part of a three-piece Faraday shield", the Examiner contends that this does not denies the fact that it is a metal separator. In this connection, it should first be noted that nowhere in Kunz is the middle part of the three-piece Faraday shield characterized as a separator. Secondly, what the Examiner is attempting to do is not combine the shield of Kunz with Wu, but instead to disassemble the shield and allege that there is a suggestion to combine one of the dissembled parts thereof with Wu for a purpose not taught by the reference. There is absolutely no precedence for such an approach.

In view of the foregoing it is respectfully submitted that claim 3 is clearly patentable over the combination of Wu '260, Yamamoto and Kunz.

Claims 8/3-8/6 are dependent either directly or indirectly from claim 3 and, therefore, patentable for the same reasons, as well as because of the combination of the features set forth in these claims and the features set forth in the claim(s) from which these claims depend.

**2. Whether claims 7 and 8/7 are unpatentable under 35 U.S.C. §103(a) over Wu '260, Yamamoto and Kunz and further in view of Laity (U.S. Patent No. 6,183,308**

Claims 7 and 8/7 are dependent either directly or indirectly from claim 3. Laity does not address any of the deficiencies noted with respect to Wu '260, Yamamoto and Kunz.

Accordingly, it is respectfully submitted that claims 7 and 8/7 are patentable over Wu, Yamamoto, Kunz and Laity for the same reasons advanced above in connection with claim 3.

In addition, Wu '260 discloses that the board 7 is connected to the upper and lower contacts by soldering the sections 42, which have been soldered to the board 7. As should be obvious, Applicants concept of merely using spring loaded pressure to effect electrical connection is simpler and does not involve the complexity of a soldering step or steps as is required in connection with Wu '260

In connection with the rejection of claims 7 and 8/7 based on Laity, the Examiner states that "Laity teaches a connector having contact fingers (354) with resilient second portions (358) *being connected to traces on a circuit board by spring action* to provide a resilient and secure connection, thus efficient and easier (than soldering) to complete." (emphasis added). The Examiner, however, is incorrect; Laity, in fact, connects the portions (358) to traces on a circuit board **by soldering**. See, for example, the following excerpt from Laity:

As seen in FIG. 24, the rearwardly extending first terminal portion *or solder tail 358 of each contact wire 354 engages the upper surface 308 of the PCBA 310 and is soldered, for example, by reflow soldering, to traces on the PCBA 310* along the rear margin 311 thereof. The recesses 322, 324 and 326 and the beveled surfaces 336, 338 and 340 defined by the wall 316 provide access to the solder tails 358 for inspection and manually touching up the solder joints, if necessary. (col.10, lines 8-16) (emphasis added).

Thus, there is no teaching in Laity to connect portions of contacts to a printed wiring board by spring pressure but, to the contrary, Laity teaches soldering.

In view of the foregoing it is respectfully submitted that claims 7 and 8/7 are clearly patentable over the combination of Wu '260, Yamamoto, Kunz and Laity.

**3. Whether claims 9/8/3 to 9/8/6 are unpatentable under 35 U.S.C. §103(a) over Wu, Yamamoto and Kunz and further in view of Goodall et al (U.S. Patent No. 5,531,612).**  
**Applicants respectfully traverse this rejection.**

Claims 9/8/3 to 9/8/6 are dependent either directly or indirectly from claim 3. Since Goodall et al does not teach any of the deficiencies of Wu '206, Yamamoto and Kunz, it is respectfully submitted that claims 9/8/3 to 9/8/6 are patentable over the combination of Wu, Yamamoto, Kunz and Goodall for the same reasons as claim 3, as well as because of the

combination of features set forth in these claims with the features set forth in the claim(s) from which they depend.

In addition, with respect to claim 6, the Examiner contends that Wu discloses second portions based upon by distances greater than the spacings of the first portions. He refers to Fig. 3. Applicants can find no such disclosure in Fig. 3. Indeed, just the opposite is found. It appears that the spacings between all of the contacts for terminal 42 and terminal 61 are identical.

The Examiner, in response to Applicant's argument (regarding claim 9/8/6) that the spacing between the contacts and the terminals are identical, notes that Applicant is comparing 42 and 61 while claim 6 refers to 41 and 42, which show the required spacing difference. Upon reconsideration, Applicant agrees with the Examiner that claim 6 refers to 41 and 42, but strongly disagrees that Fig.3 or any other Figure show spacing differences between 41 and 42; nor, is there any teaching or suggestion in the speciation to that effect. Surely, if the spacing were different, the patentee would have so noted in the specification.

**4. Whether claim 9/8/7 is unpatentable under 35 U.S.C. §103(a) over Wu, Yamamoto et al, Kunz and Laity, and further in view of Goodall et al.**

Claim 9/8/7 is dependent either directly or indirectly from claim 3. Since Goodall et al does not teach any of the deficiencies of Wu '206, Yamamoto and Kunz, it is respectfully submitted that claims 9/8/7 is patentable over the combination of Wu, Yamamoto, Kunz and Goodall for the same reasons as claim 3 is patentable, as well as because of the combination of features set forth in these claims with the features set forth in the claim(s) from which they depend.

**5. Whether claims 12-15 are unpatentable under 35 U.S.C. §103(a) over Wu, Yamamoto, Kunz and further in view of Goodall et al. Applicants respectfully traverse this rejection.**

Claim 12, like claim 3, specifies that the toroid assembly housing has a metal separator for separating one set of toroids from the other set of toroids. As discussed above, neither Wu, Yamamoto, Kunz nor Goodall et al., disclose or suggest this feature. Accordingly, it is respectfully submitted that claim 12 is clearly patentable over Wu, Yamamoto, Kunz and Goodall et al.

Claims 13-15 are dependent either directly or indirectly from claim 12. Accordingly, it is respectfully submitted that claims 13-15 are patentable for the same reasons, as well as because of the combination of features set forth in these claims with the features set forth in the claim(s) from which they depend.

**6. Whether claim 16 is unpatentable under 35 U.S.C. §103(a) over Wu ‘260, Yamamoto, Goodall and Kunz and further in view of Laity. Applicants respectfully traverse this rejection.**

Claim 16 is dependent either directly or indirectly from claim 12. Laity does not address any of the deficiencies noted with respect to Wu ‘260, Yamamoto, Kunz and Goodall. Accordingly, it is respectfully submitted that claim 16 is patentable over Wu, Yamamoto, Kunz, Goodall and Laity for the same reasons advanced above in connection with claim 12.

In summary, Applicant respectfully submits that the Examiner is rearranging and making modifications to the prior art structure using Applicant's claims as a blueprint. It has long been held that such hindsight reconstruction is impermissible.

In view of the foregoing this application is now believed to be in condition for allowance, which action is respectfully requested.

**VIII. CONCLUSION:**

In view of the foregoing, it is respectfully submitted that claims 3-9 and 12-16 are clearly patentable over the references. Accordingly, it is respectfully requested that the decision of the Examiner finally rejecting claims 3-9 and 12-16 be reversed and that this application be passed to issue.

Applicants reserve the right to request an oral hearing upon receipt of the Examiner's Answer.

Credit card payment for the required fee in the amount of \$500 is being submitted via EFS-Web.

If this Appeal Brief is filed after a shortened statutory time period has elapsed and no separate Petition is enclosed, the Commissioner of Patents and Trademarks is petitioned, under 37 C.F.R. §1.136(a), to extend the time for filing a response to the outstanding Office Action by

the number of months which will avoid abandonment under 37 C.F.R. §1.135. The fee under 37 C.F.R. §1.17 should be charged to our Deposit Account No. 15-0700.

In the event the actual fee is greater than the payment submitted or is inadvertently not enclosed or if any additional fee during the prosecution of this application is not paid, the Patent Office is authorized to charge the underpayment to Deposit Account No. 15-0700.

Respectfully submitted,

THIS CORRESPONDENCE IS BEING  
SUBMITTED ELECTRONICALLY THROUGH  
THE PATENT AND TRADEMARK OFFICE  
EFS FILING SYSTEM ON May 14, 2007.



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Attachment: Appendix of the claims

## CLAIMS APPENDIX

3. A multiport connector, which comprises:

a housing having at least two aligned compartments, each compartment being structured and arranged to receive respective plugs;

a multilayer printed wiring board separating the two compartments, the printed wiring board having circuit patterns on opposite sides of opposed non-conductive layers and a metal shielding layer intermediate the non-conductive layers;

a first plurality of conductive contact fingers in one of the compartments, the first plurality of fingers having first portions for making electrical contact with one of the plugs and second portions for making contact with the circuit pattern on one of the non-conductive layers of the multilayer printed wiring board; and

a second plurality of conductive contact fingers in another of the compartments, the second plurality of fingers having first portions for making electrical contact with another one of the plugs and second portions for making contact with the circuit pattern on another one of the non-conductive layers of the multilayer printed wiring board, wherein one of the compartments has a toroid assembly housing for housing two sets of toroids, one set for one compartment and the other set for another compartment and the toroid assembly housing has a metal separator for separating one set of toroids from the other set of toroids.

4. A multiport connector in accordance with claim 3, wherein the toroid base assembly has a first set of contacts for connecting the two sets of toroids to the circuit patterns on the

printed wiring board and a second set of contacts for connecting the two sets of toroids to an external circuit.

5. A multiport connector in accordance with claim 3, wherein respective first portions of the first plurality of contact fingers and the second plurality of contact fingers have spacings therebetween which are equal to the spacings between corresponding contacts in the plug.

6. A multiport connector in accordance with claim 5, wherein- respective second portions of the first and second plurality of conductive contact fingers are spaced apart by distances greater than the spacings between the respective first portions.

7. A multiport connector in accordance with claim 3, wherein the first plurality of conductive contact fingers and the second plurality of conductive contact fingers are resilient and make contact with the circuit patterns by spring action forcing the second portions into electrical contact with the respective circuit patterns.

8. A multiport connector in accordance with any one of claims 3-7, wherein the compartments are upper and lower vertically aligned compartments.

9. A multiport connector in accordance with claim 8, wherein the housing has a front face and a rear face and metallic shields are disposed on the front and rear faces.

12. A multiport connector, which comprises:

a housing having a plurality of sets of upper and lower vertically aligned compartments, each compartment being structured and arranged to receive respective plugs;

a multilayer printed wiring board separating the two upper and lower compartments of each set, the printed wiring board having circuit patterns on opposite sides of opposed non-conductive layers and a metal shielding layer intermediate the non-conductive layers;

a first plurality of conductive contact fingers in one of the compartments of each set, the first plurality of fingers having first portions for making electrical contact with one of the plugs and second portions for making electrical contact with the circuit pattern on one of the non-conductive layers of the multilayer board separating the upper and lower compartments of said set; and

a second plurality of conductive contact fingers in the other of the compartments, the second plurality of fingers having first portions for making electrical contact with the other one of the plugs and second portions for making contact with the circuit pattern on the other one of the non-conductive layers of the multilayer printed wiring board, wherein one of the compartments of each set of upper and lower compartments has a toroid assembly housing for housing two sets of toroids, one set of toroids for one compartment and the other set of toroids for the other compartment and the toroid assembly housing has a metal separator for separating one set of toroids from the other set of toroids.

13. A multiport connector in accordance with claim 12, wherein the toroid base assembly has a first set of contacts for connecting the two sets of toroids to the circuit patterns on the printed wiring board and a second set of contacts for connecting the two sets of toroids to an external circuit.

14. A multiport connector in accordance with claim 12, wherein respective first portions of the first plurality of contact fingers and the second plurality of contact fingers have spacings there between which are equal to spacings between corresponding contacts in the plug.

15. A multiport connector in accordance with claim 14, wherein respective second portions of the first and second plurality of conductive contact fingers are spaced apart by distances greater than the spacings between the respective first portions.

16. A multiport connector in accordance with claim 12, wherein the first plurality of conductive contact fingers and the second plurality of conductive contact fingers are resilient and make contact with the circuit patterns by spring action forcing the second portions into electrical contact with the respective circuit patterns.

## **EVIDENCE APPENDIX**

None.

**RELATED PROCEEDINGS APPENDIX**

None.